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# SQUAB RAISING



**P**IGEON raising is conducted successfully as a special business, but is better adapted to serve as a side issue on a small scale in towns and cities and on general farms.

A reasonable profit on the investment and labor required can be made by those who will give the pigeons careful and regular attention.

There are a number of good breeds of pigeons from which to choose for squab raising, but special care in selecting and acquiring the foundation stock is very essential, as it is difficult for the novice to determine either the age or the sex of pigeons by their appearance.

This bulletin discusses in detail the general management of pigeons for the production of squabs for market.

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# SQUAB RAISING

By ALFRED R. LEE,

*Associate Poultry Husbandman, Animal Husbandry Division, Bureau of  
Animal Industry*

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**P**IGEONS are kept in all parts of the United States, but most of the large squab-producing plants are found near the large cities in the Northeastern and Central Western States and on the Pacific coast. Prolific pigeons that produce large squabs are confined in pens on these squab-producing plants. Common pigeons, which are less prolific and produce small squabs, are kept as a side issue on many general farms throughout the country and are usually allowed to fly at will. Better results would be obtained if good squab-producing breeds of pigeons were kept and confined in pens.

### POSSIBILITIES IN THE BUSINESS

Pigeon raising may be conducted successfully as a special business in towns and cities and on general farms, but is better adapted to serve as a side issue on a small scale. The demand for squabs, especially in large cities, is increasing, and squabs are often used in place of game. The prices received are high enough to make squab raising return a fair profit wherever there is a good market. An average annual return, above cost of feed, of from \$2.25 to \$3.25 per pair of breeders is considered good on successful plants producing market squabs only. Many of the large, successful pigeon farms make a business of selling breeding stock and produce squabs for meat as a side issue only.

Many persons can keep pigeons successfully as a side issue, although it requires constant oversight and careful attention to details. The greatest difficulties which confront the beginner in the raising of pigeons are procuring good breeding stock and finding

a good market for the product of a small flock. Pigeons may be a profitable source of income on many general farms if they are properly handled and if a good market can be found for the squabs. There have been many failures in squab raising, because the profit in the business has been greatly overestimated and because the care of the stock has been regarded as something in which anyone could succeed without training or experience.

### BREEDS SUITABLE FOR SQUAB RAISING

There are many breeds of pigeons, but only six are used extensively for producing squabs for meat in this country—King, Carneau, Mondaine, Homer, Runt, and Hungarian. These breeds make up what is called the utility class of pigeons, and all, with the exception of the Mondaine, contain several varieties which are used to some extent for squab raising. Only the most popular variety of each breed is described in this bulletin, as the less common varieties have the same type, shape, and size, and differ only in color.

The best breed to use depends on the market, but the greatest demand is for good-sized squabs which have light-colored skins. The White Kings, Red Carneaux, White Mondaines, and Black Hungarians are good producers of squabs of this type. Many restaurants and hotels prefer a smaller squab, which is cheaper; the Homer is best adapted for this trade. The Runt is the best breed to keep if an extra large squab is desired.

The small, common pigeon is probably most widely distributed on farms. These pigeons produce small

squabs, frequently of poor quality, and are not so prolific as the improved breeds.

#### KING

The White King was produced in the United States about 1891 by crossing the white varieties of the Runt, Homer, Maltese, and Duchess. This is a good-sized breed, the old and the young cock weighing 26 and 24 ounces and the old and the young hen 24 and 22 ounces, respectively. It is a very good producer of light-colored squabs, and is one of the most popular breeds to keep for this purpose. The body should be blocky, with broad shoulders and good depth from the back to the keel. The general appearance should be of an upright "cobby" type, as shown in Figure 1. The carriage is upright with the tail just clearing the ground when the bird is standing in its natural position. The head is moderately large, with a round skull.

The plumage of the White King is white throughout and should be tight and close fitting.



FIG. 1.—White King (male). One of the most popular squab producers

The Silver is the only other standard variety of the King breed.

#### CARNEAU

The Carneau originated in France and was not brought into the United States until about 1900. Although slightly smaller than the King, it is a good-sized bird, the old and the young cock weighing 24 and 23 ounces and the old and the young hen 23 and 22 ounces, respectively. It is also one

of the most popular squab producers in this country, and is an excellent breeder of high-quality squabs. The body is short, compact, and full-breasted, with an upright carriage and moderately short wings and tail, as illustrated in Figure 2. The head is of moderate size, broad between the eyes, and has a gradual, rounding curve over the skull.



FIG. 2.—Red Carneau (male), another popular squab producer

The Red Carneau is the most popular variety of this breed for squab production. The surface plumage should be of a deep chestnut red throughout, with the color penetrating to some extent into the under color.

Other standard varieties of the Carneau are the Yellow, Black, White, Rosewing Red, and Rosewing Yellow, but the last three are not common.

#### MONDAINE

The origin of the Mondaïne, often called the Swiss Mondaïne, has not been definitely established. Two views exist regarding this breed; one that it is a mixture of several of the breeds in this country kept for squab production, the other that it was imported from Europe.

The Mondaïne is slightly larger than the King; the legs are slightly longer and the body and neck are longer and more slender; the head is of medium size and is full in front. This breed shows great length in every part, which gives it the long, sweeping appearance shown in Figure 3. It is an excellent squab-producing breed, the old and the young cock weighing 27 and 24 ounces and the old and the young hen 24 and 21 ounces, respectively. This breed is neither so well

known nor so widely distributed as the King or the Carneau.

The plumage of the White Mondaine, which is the only standard variety of the breed, is white in every section. It is a close-feathered breed with clean legs. The flight feathers of the wing are very long, but the wing should be carried up tightly to the body.

#### HOMER

The Homer (fig. 4) is not usually classed as one of the utility breeds, but it is the oldest breed of pigeons in this country and has been used very extensively for squab production, the birds used originally for this purpose having been of Flying Homer breeding. The Homer is primarily a flying pigeon kept for racing purposes, and derives its name from the fact that it has a remarkable faculty for returning to its home. Because of this trait it is necessary to keep this breed confined if the pigeons have been purchased.

The Homer is the most prolific breeder and the best feeder of all the breeds and is a very desirable breed to keep where a medium-sized rather than a large squab is desired. It may often be kept to advantage



FIG. 3.—White Mondaine. This breed is rapidly becoming popular for squab production.

with one of the larger breeds. The bird should be of medium size and have a neat, trim, compact appearance. The breast and back should be broad and well muscled.

Three distinct lines of Homers are bred, namely, the Flying, the Exhibition, and the Show. These three kinds differ materially in shape, size, and head points. Homers used for squab

production have been selected and bred from either the Flying or the Exhibition lines, as the Show Homer is not adapted for producing market squabs. Little attention has been given to color in breeding the Homer either for squab production or for racing, but the Blue, Blue Checker, and Black



FIG. 4.—Homer (male). A very good producer of small squabs.

Checker are the most common varieties. The color of the Blue is an even shade of light grayish blue in all sections except the head, neck, tail, and ends of the wings, which are much darker. The Blue Checker has a ground color of light grayish blue, and the back and wings are evenly checkered with black. Most Flying Homers are smaller than the Homers selected and bred for squab production.

#### RUNT

The Runt in this country is said to be descended from the Spanish common pigeon. As it is the largest of the breeds kept here its name is rather misleading. The Runt is characterized by a very large body, giving an appearance of massiveness and great strength, as shown in Figure 5. The head is large and broad between the eyes, and the top of the skull is oval. The body is blocky, the breast broad and deep, and the back broad. The Runts are considerably larger than the other squab breeds, the old cock weighing 3 pounds, the old hen and the young cock each 2½ pounds, and the young hen 2½ pounds. The Runt lacks the upright, "cobby" type of the King, the breast being carried only slightly above horizontal, with the tips of the wings resting on the tail.

Runts are kept to some extent for squab production, but are usually not

so good, either as breeders or as feeders, as the smaller breeds. They are sometimes used to cross with the small breeds, but as a rule better results are obtained by keeping the breeds pure. Runts are frequently kept in pairs in individual pens, as they will often fight and injure one



FIG. 5.—White Runt (male). The largest variety of pigeon but usually only a fair producer

another when kept even in moderate-sized flocks.

The White Runt is by far the most popular of this breed for squab production, while the six other standard varieties, the Blue, Black, Red, Yellow, Silver, and Dun, are only occasionally used for this purpose. The plumage of the White Runt should be pure white in all sections. The feathers should be tight fitting and the wings and tail of moderate length only. This breed, as well as all squab producers, should have shanks and toes free from feathers.

#### HUNGARIAN

The Hungarian pigeon, which was introduced from Austria-Hungary, differs very materially in type from the other breeds commonly kept for squab production. It has a short, compact, solid body, a long neck, high tail, and long legs, as shown in Figure 6. The standard weights are 25 ounces for the old cock, 24 ounces for the old hen and the young cock, and 22 ounces for the young hen. Care should be taken to avoid breeding the birds which are very high on their legs, as the reproduction of that type will reduce the heavy, square body so essential in the production of good market squabs. The Hungarian, although a good squab producer, is not kept so extensively for this purpose as the other breeds discussed, more attention having been given to selecting

this breed for standard color, making it a very attractive pigeon for exhibition.

The Black Hungarian, shown in Figure 6, is the most widely distributed variety of this breed, but no one variety is especially outstanding in numbers as is the case with the other squab-producing breeds. This variety has almost as much white as black in its surface color, but the black markings are much more prominent. The black is of a deep, even shade, with a white stripe resembling a tape marking extending over the crown of the head, down the back of the neck, widening as it goes, thus forming a triangle with the narrow, pointed vertex at the back of the neck. The white extends in a narrow stripe around the front of each wing and comes together from both sides in an even curve, where it is merged into the white of the lower part of the breast, legs, and thighs, meeting over the rump. The breast is covered with a large, black, pear-shaped bib which extends up to the head. The tail and



FIG. 6.—Black Hungarian (male). A good squab producer but bred more for exhibition

wings are all black except for 8 or 10 of the long flight feathers in each wing, which are white.

#### SELECTING BREEDERS

Good breeding stock is one of the prime essentials of success in squab raising. It is advisable to buy pigeons from reliable breeders and, if possible, from those who guarantee their product. Many failures in squab raising

have been due to poor stock, because the prospective producer either bought old pigeons past their period of usefulness or obtained a surplus of male birds. It is difficult to determine by casual observation the age and the sex of pigeons, and this makes it difficult for the buyer to determine the value of the stock.

Constant and careful culling must be followed to make squab production profitable. This requires that the nests should be examined frequently and careful records kept of the squabs. The medium-sized breeds of pigeons which do not raise at least five pairs of squabs annually to market age should be either culled or remated. There is a great difference in the value of pigeons as squab producers, even when of the same variety, making it advisable to select the birds individually for their vigor and productiveness, for the quality, number, and size of their squabs, and for their ability properly to feed and rear their offspring. Dark-colored skin, legs, or beak indicate poor quality of flesh, and should be avoided by selecting birds for breeding which have white or pinkish-white skin and light-colored legs.

Young pigeons, about a year old, which have mated and started to breed, are commonly purchased to begin pigeon keeping. Pigeons are most valuable as squab producers when from 2 to 6 years old, although many will breed until they are about 8 years old. The small varieties will mate and breed at about 6 months and the larger ones at about 9 months. The best breeding results are obtained if the young birds are not allowed to breed until they are well matured, which is from 1 to 3 months older than the age at which they will mate.

Squabs hatched in April, May, and June make the best breeders, while their market value as squabs is comparatively low at that time of the year. Those which are to be saved for breeding should be banded as soon as their feet are large enough to hold the bands, usually when 7 to 10 days old, so that a record can be kept of their breeding. Numbered, seamless bands, which are slipped over the squabs' feet, are used to keep pedigree records. The young pigeons are commonly removed from the breeding pen and put into a pen by themselves after they are able to fly about and pick up their own feed. A catching net or bag made of large-mesh cotton netting, with the mouth or top about 18 inches

in diameter, is very useful for catching the pigeons.

### MATING

Pigeons mate in pairs and usually remain with their mates throughout life, although the mating may be changed if desired. The presence of unmated pigeons (especially males) in the pigeon loft is a source of much trouble and usually prevents profitable results; therefore it is very essential that only mated birds be kept in the breeding pens.

It is difficult for the novice to distinguish sex in pigeons, as sex can be determined only by the general appearance, walk, carriage, and actions of the breeders. The male is larger and coarser than the female, especially in the head and neck, and is much more aggressive. The male struts about, making a cooing noise, and drags his tail on the ground; but the female rarely struts or coos and she holds her body more horizontally than the male. This strutting of the male tends to make the ends of his tail feathers rough. A very aggressive young male may be used in the pen as a decoy to drive the females so that the latter may be separated from the flock. The pelvic bones, which are close together and hard in the male, are spread apart in the female after she has begun to lay, and the female then has a tendency to waddle when walking.

Two methods of mating are used, natural and forced, and either will give good results. Unmated males and females are kept in a pen in natural mating and allowed to select their own mates, which is usually indicated by the male's billing with and driving the female. If properly mated the pair will commence to build their nest and will be found together at night, while unmated birds usually remain alone. Newly mated pigeons may be allowed to build a nest and lay eggs in the mating pen to be sure that they are well mated.

Forced matings may be made if the sex of the pigeons is known. A male and a female which are to be mated are confined in mating coops with a movable-wire or open-slat partition between them, so that they can see each other for one day, after which the partition is removed and the birds are allowed to go together. They are removed to the breeding pen as soon as they appear to be properly mated. Still another method of mating is to put both the male and the female to-



gether in the same coop without keeping them apart for the first day. The pigeons should be kept in this mating coop for two or three days until they become settled. The nest boxes may be arranged so that the fronts can be closed and used for mating coops (fig. 7).

Careful selection and mating of breeding stock and constant culling are essential in building up a productive flock of squab producers. Matings should be made to increase the vigor and prolificacy of the stock and to improve the size and color of the squabs. Mating, production, and rearing records should be kept of the pigeons and all unprofitable birds

pigeons are allowed to mate at will and a pair from the same nest mate together, it is usually advisable to separate and remate such closely related birds.

A simple but accurate system of records should be kept for each pen, showing the band numbers of each pair. In addition to the seamless bands put on when they were squabs the breeding males are usually banded on the right leg and the females on the left leg, so that the sex of the birds in the breeding pen can be readily seen. The use of large, colored, numbered bands makes it easier to keep these records. The nests are numbered and a record kept of the nest

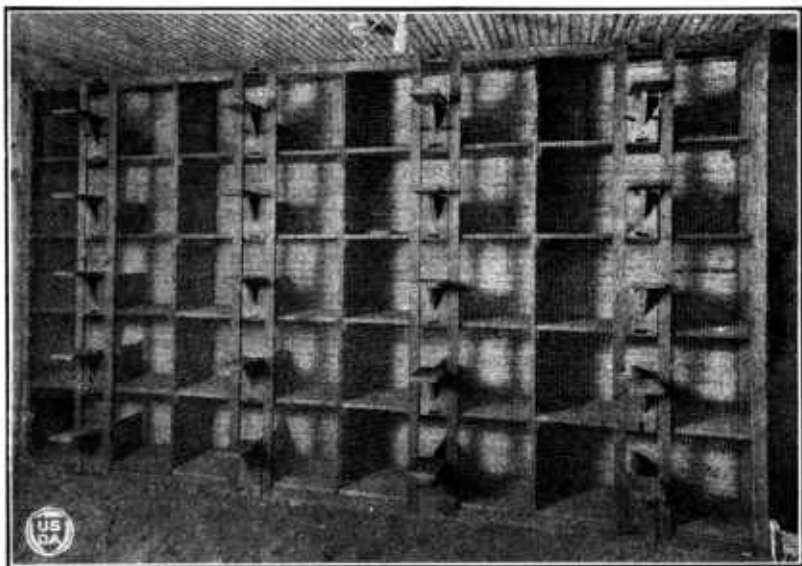


FIG. 7.—Nests with movable fronts. These nests may be closed and used as mating coops

culled. Old pigeons mated with young birds often give good results in breeding, making it advisable sometimes to break up and change a mating as a pair gets old and production decreases. If a breeding pigeon dies, its mate should be removed from the pen and a new mating made. Pairs which produce dark-colored or small squabs should be culled or remated.

Continued close inbreeding is not a desirable practice for the average squab raiser. Inbreeding, however, tends to fix good as well as undesirable characters, making it a means of either great improvement or marked deterioration, depending on how carefully the matings are made. If the

occupied by each pair. The fronts of all unoccupied nests should be kept closed so that there is only one double nest for each mated pair.

#### HATCHING AND REARING SQUABS

The period of incubation of pigeon eggs is about 17 days. The hen pigeon usually lays two eggs in three days before she starts to sit. If more than two eggs are laid, it is advisable to remove the extra ones, as a pair of pigeons can raise only two good squabs at one time. Both the male and the female pigeon sit on the eggs, the male usually sitting from about 8 a. m. until 3 or 4 p. m., while the female

stays on the nest the rest of the time. Pigeon eggs are usually fertile if the pigeons are healthy and properly fed. One squab frequently hatches first; and if there are several nests in which one squab outgrows its mate, it may be advisable to sort the squabs in the nests, making the pairs as nearly uniform as possible in size and age. While squabs are in the nest males usually grow faster and are noticeably larger than females. Some birds do not feed their squabs well, and it is sometimes necessary to transfer such young to other breeders which have only one squab; but squabs should not be moved any more than is absolutely necessary.

Squabs are reared and fed by both of the parent birds on a thick, creamy mixture called pigeon milk, produced in the crop of the pigeons. Pigeons usually feed their squabs shortly after they themselves are fed and should not be disturbed at that time, thus making it advisable to water them before they are fed. Care should always be taken not to frighten pigeons, and squabs should not be disturbed any more than is necessary. If the parent birds die, the squabs may be removed to a nest where there is only one squab, or they may be fed artificially, although this process takes considerable time.

### FEEDING

The feeding of pigeons differs radically from that of poultry in that pigeons are not fed any mash and they feed their own young. Pigeons should be fed a ration of whole grains and be provided with a constant supply of fresh water and grit. A good mixture of staple grains may be made of 2 parts each, by weight, of small whole corn, kafir, and Canada or field peas, and 1 part each of hard, red wheat and millet seed. Five per cent of hempseed may be added to this ration to advantage during the molting period. The proportion of corn in the ration may be reduced somewhat during warm weather and increased in winter. Tender green feed, such as lettuce, kale, and cabbage leaves, and freshly cut clover, alfalfa, and grass, may be fed, but is not commonly used.

Other feeds which may be used with good results in feeding pigeons are peanut kernels and garden peas in place of Canada peas, Egyptian corn or milo for kafir, and hempseed or flaxseed for millet, while a small quantity of rice, rape, canary, vetch, and chopped sunflower seed may be fed for variety. Canada peas and

peanuts are expensive, but some feed of this kind high in protein is necessary for profitable squab production. Cowpeas are sometimes used to replace Canada peas, but do not give as good results. Soybeans are not relished by pigeons, but they may replace peas after the pigeons are used to them.

Millet, flaxseed, and hempseed have a rather high vitamin content, and peas or peanuts may also help to supply this need. Yellow corn, because of its vitamin content, is probably a better feed than white corn for pigeons which are confined. Various stimulating seeds, such as vetch and lentils, are sometimes fed as a tonic to breeding birds during the molting period.

A variety of good, hard, thoroughly dried grain is essential to success. Grains which are in poor condition should not be fed to pigeons. New, soft grains, especially wheat and corn, should never be fed to pigeons, as they will cause bad results in the flock, particularly among the squabs. The smaller kernels of whole corn, sold as pigeon corn, are used for pigeons. Flint corn is especially desired, but cracked corn should not be used unless freshly cracked. Red wheat is considered better than white wheat for pigeons, while some breeders of pigeons prefer a ration without wheat.

Commercial mixed pigeon feeds are used extensively in feeding pigeons, especially where only a small flock is kept. The quality of these feeds is usually good, and it is easier to buy these feeds for a small flock than to mix the ration at home, on account of the number of grains used. Dealers often handle two or three grades of the mixed pigeon feeds, but it usually pays to get the best quality, which contains a considerable quantity of peas, while the cheaper grades have few if any peas in them. The fat, crude protein, carbohydrate, and fiber analyses of these commercial feeds are marked on the bags.

The accompanying table gives the composition of the grains most commonly used in feeding pigeons. Peas and peanuts contain a large percentage of protein, which is the most valuable and most expensive constituent of a pigeon feed. The ration previously mentioned, consisting of 2 parts each, by weight, of whole corn, kafir, and Canada peas, and 1 part each of red wheat and millet seed, contains 13.9 per cent crude protein, 70.4 per cent carbohydrates, 3.7 per cent crude fiber, and 2.9 per cent fat.

## Composition of pigeon feeds

Feed	Dry matter	Ash	Crude protein	Carbohydrates		Fat or ether extract
				Crude fiber	Nitrogen-free extract	
	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
Corn.....	87.1	1.3	9.3	1.9	70.3	4.3
Wheat.....	89.4	1.8	12.3	2.4	71.1	1.8
Kafir.....	90.6	1.6	11.1	2.1	72.6	3.2
Milo.....	89.3	2.8	10.7	2.4	70.5	2.9
Canada field peas.....	90.8	3.4	22.9	5.6	57.8	1.1
Peanut kernels.....	94.5	2.3	30.2	2.8	11.6	47.6
Garden peas.....	88.2	3.0	25.6	4.4	53.6	1.6
Cowpeas.....	90.2	3.6	23.8	4.3	57.1	1.4
Soybeans.....	93.6	4.8	39.1	5.2	25.8	18.7
Millet.....	89.2	3.6	12.1	8.4	61.0	4.1
Flaxseed.....	90.8	4.3	22.6	7.1	23.2	33.7
Hempseed.....	92.0	2.0	10.0	14.0	45.0	21.0
Sunflower seed.....	93.8	4.2	15.9	28.6	21.1	24.0
Rice (polished).....	87.6	.4	7.4	.2	79.2	.4

Hoppers in which feed is kept before the pigeons are sometimes used, but may attract rats. Troughs and open hoppers should be fitted with wires or slats about 2 inches apart, so that the pigeons can not waste the feed by throwing it out on the floor.

If the grain is not kept in hoppers the pigeons should be fed regularly twice daily, giving from  $1\frac{3}{4}$  to  $2\frac{1}{2}$  quarts or  $2\frac{1}{4}$  to  $3\frac{1}{4}$  pounds of grain at each feeding to 20 pairs of pigeons, depending on the size of the pigeons and the number of squabs in the nests. It is very essential that the pigeons have a plentiful supply of grain while they are rearing squabs if rapid growth of the young is to be obtained. The feeder must regulate the quantity of grain according to the appetite of the birds, giving them all they will clean up. A pair of pigeons will eat from 90 to 120 pounds of feed in a year, which will cost from \$2.70 to



FIG. 8.—Shed-roof pigeon house with partly open front. Attached fly contains a concrete bathing and drinking basin supplied with running water

The grain may be fed on the floor of the pen, in troughs, or kept before the birds in hoppers. It is not advisable to feed the grain on the ground, especially on heavy soil, where it may get wet and moldy. Unless the floor is kept clean it is better to feed the grain in troughs than on the floor. The troughs should be made so that the pigeons will not roost on them and soil the feed with their droppings.

\$3.60 a year at the present prices of grains (1924).

Clean drinking water, fine grit and oyster shell, and charcoal should always be kept before the pigeons. Salt, which is fed to pigeons in various forms, is considered essential. Commercial grit mixtures containing salt, fine grit and oyster shell, charcoal and various minerals are used by many pigeon raisers. A good mixture for

this purpose may be made of 40 pounds of fine oyster shell, 27 pounds of fine grit, 10 pounds of charcoal, 10 pounds of ground bone, 5 pounds of ground limestone, 5 pounds of fine salt, and 3 pounds of venetian red. Such mixtures are relished by the pigeons and seem to have some value in keeping them in good breeding and feeding condition.

### MANURE

Dry pigeon manure may be sold to market gardeners or florists in some localities at a good price, but it is more commonly used at home as a fertilizer. As it is quite rich it has considerable value as a fertilizer and should be mixed with dry dirt or some filling material before it is used. It may sometimes be sold to tanners, but the demand for this purpose is very

that they will have the greatest amount of direct sunlight in the front. As labor is a big item, the arrangement of the house for convenience in performing the necessary work adds to the chances of success.

The shed-roof type of house shown in Figure 8 is one of the simplest and best types to use for market-squab production. The house is 16 feet deep, 6 feet high in the rear, and 8 feet high in front. The pens are 9 by 12 feet, with a 4-foot alleyway in the back part running the entire length of the house. The alley is 4 feet wide to provide space for feed hoppers and boxes for grit, shell, and tobacco stems, which devices are built into the alley partition, so they can be filled without going into the pens (fig. 12). An alley 3 feet wide is large enough for all other purposes. The pens are

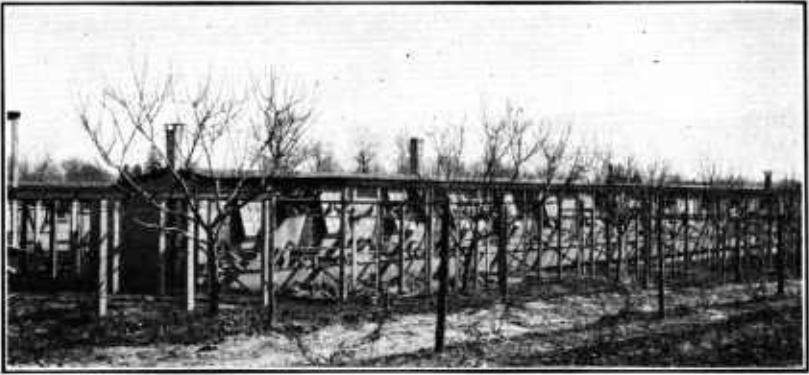


FIG. 9.—Hip-roof pigeon house (used in New Jersey)

limited, and the manure so used must be kept free from all foreign matter, such as sand and nesting material.

### PIGEON HOUSES AND EQUIPMENT

The important considerations in building houses are fresh air, sunlight, economy of labor, and space enough to keep the pigeons comfortable. Fresh air is essential in a pigeon house. Pigeons will do well in a cold house provided it is well ventilated. Dryness is also necessary. Not only should the building be tight to keep out rain, but the moisture from the pigeons and from the nests of squabs within the house must be carried off by ventilation. The more sunlight in the house the better, as this helps to dry out the moisture and also makes the building more sanitary. The houses should face the south, so

arranged to open into the alley, so that the pigeons will not be disturbed any more than is absolutely necessary. A separate alleyway is always desirable in a house which contains more than four pens.

Other styles of houses and outside yards or "flies" are shown in Figures 9 and 10. Houses of various styles may be used for pigeons, and in many cases where only a few are kept available buildings, such as lofts of barns and vacant poultry houses, can be fitted up at small cost. Details of the construction of houses are given in *Farmers' Bulletin 1413, Poultry House Construction*. The same kind of lumber and style of construction are used for pigeon as for poultry houses, except that pigeon houses must be well built and tightly constructed to make the pens comfortable during cold weather.

Construction costs are affected by many local factors, so that only a very rough estimate of the probable outlay for construction can be given. This estimated cost (1924) is from \$1.75 to \$2.90 for each pair of breeders housed. The cost for materials alone would be about two-thirds of the total construction cost.

More open and less expensive pigeon houses may be built in mild than in cold climates, but the house must be comfortable in cold weather. The building should be tightly constructed on the north, west, and east sides to prevent drafts, and the opening in the south side should be arranged so that the sunshine can thoroughly dry out the pen. The fronts shown in Figure

pens. Pens 9 by 12 feet will accommodate 36 pairs of large pigeons, or 50 pairs of Homers, which is as many as should be kept together in one pen. A separate pen for each pair of pigeons is sometimes made for Runts, as that breed does not do so well where any considerable number of breeders are kept together.

#### FLOORS AND FLIES

The floors of pigeon houses should be constructed so that they can be kept free from rats easily. This is usually accomplished by building the house from 18 to 30 inches above the ground, using board floors, and boarding up the space between the ground and the floor, but leaving small doors

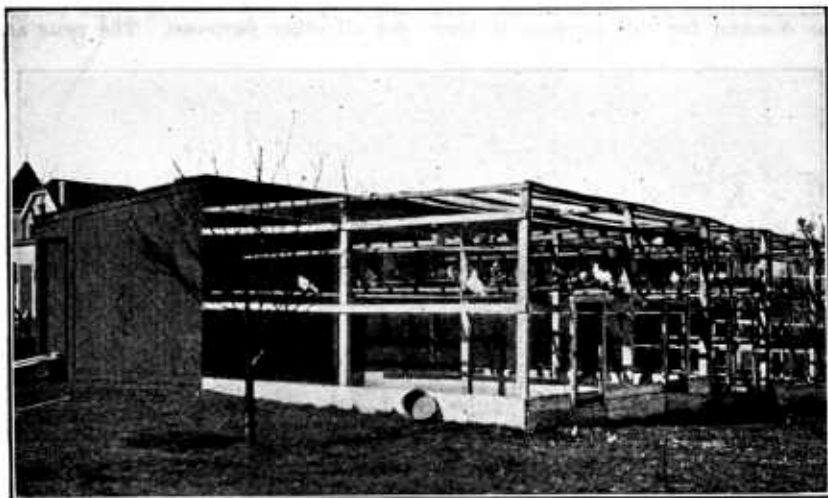


FIG. 10.—Pigeon house and fly. Note bath pan against fence

8, which are adapted for conditions around Washington, D. C., and points south, are never closed. Figure 9 shows a style of front adapted for sections farther north. The openings in both of the houses are protected to keep rain from beating into the pen.

Heating a house during the winter may result in greater squab production in cold weather, but is usually not considered profitable.

The house may be made any length desired, the best length being governed by the number of pigeons to be housed and by the slope of the land.

The necessary floor space to allow for each pair varies from  $2\frac{1}{4}$  to 3 square feet, according to the size of the pigeons. More floor space per pair is required in small than in large

or openings for ventilation and so that cats and dogs can get under the house. Wooden floors so constructed should be double, with building paper between the layers, except in the southern part of the United States. Concrete makes a very good floor for a pigeon house, as it will keep out rats, but it must be well covered with sand or straw.

Nearly all pigeons kept for squab production are confined by the use of an outside fly or yard covered with wire, which is built on the south side of the house. This fly is usually made from 6 to 8 feet high, 15 to 20 feet long, and of the same width as the pen. A few pigeonholes about 8 inches in diameter are made in the upper part of the front of the pen, as

shown in Figure 9. Larger openings, oblong in shape, are sometimes used. No holes are needed in the house shown in Figure 8, as the front of the house is never closed. Boards 6 inches wide on which the pigeons can light should be placed at the bottom of all pigeonholes, on both the outside and inside of the house. Roosting boards about 4 inches wide are placed only at the end and on the sides of the fly, as shown in the accompanying illustrations (figs. 8, 9, and 10). These boards should be at least 4 inches from the outside wire and should not be placed where they will prevent the pigeons from flying freely in the yards. Two-inch mesh wire is commonly used to cover the fly, but 1-inch mesh wire is preferable in localities where sparrows are abundant.

#### INTERIOR FIXTURES

The interior fittings should consist of a double nest for each pair of breeders, nest bowls, and miscellaneous equipment, such as feed hoppers and a receptacle for tobacco stems. All of this equipment should be as simple as possible and easy to clean. Double nests are necessary because the pigeons frequently start to build another nest when their squabs are only 2 weeks old. There should be only as many double units as there are mated pairs, and any additional nests in the pens should be kept closed. Portable wire fronts are used to close these extra nests and are also

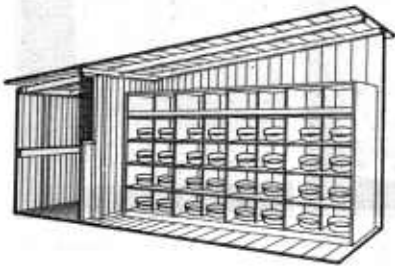


FIG. 11.—Interior of pigeon pen, with nests arranged in pairs. The upper tier shows the use of a retaining strip in place of individual nest bowls

used to confine pigeons which are mating when the nests are used as mating coops.

Nest compartments should be 12 inches high, 16 inches deep, and 24 inches wide, divided into two parts, as shown in Figure 11. Double nests for very large breeds, such as the Runt, should be 2 inches deeper and 4 inches

wider than for the medium-sized breeds. Four inches in the front is separated from the nest proper and serves as a runway for the pigeons. This allows each pair to control their own nests but tends to prevent them from fighting with neighboring pairs. This type of nest provides room for



FIG. 12.—Alley in rear of pigeon house, showing arrangement of feed hoppers

both roosting and nesting so that no separate roosts have to be provided on the walls. The floors of the nests should be arranged so that they are portable and may be easily cleaned. The nests are usually built in tiers against the side walls of the pen, extending from the floor to 6 or 7 feet high (fig. 11). Two nest bowls are usually provided for each pair of breeders and help to keep the nests sanitary. Such bowls are made of earthenware, wood, or fiber. A convenient size is from 3 to 4 inches deep and 8 to 10 inches in diameter. Nest pans are not used at all in some pigeon plants, in which case the nesting material is retained by the strip in the front of the nests as shown in this illustration.

Nesting material should be kept in each pen. Tobacco stems are generally provided for this purpose, but chopped straw or hay may also be used. This nesting material is kept in a slatted crate, and the pigeons collect the stems and build their own.

nests. Tobacco stems should be kept loose so the pigeons can easily get them. A thin layer of sand on the floor makes it easier to keep the pen clean, or the floor may be lightly covered with straw.

Hoppers and feed troughs should be of good size, and the hoppers should be constructed so that the pigeons can not waste the grain easily by throwing it out on the floor. Drinking fountains, hoppers for feed, grit, and shell, and boxes for the nest-

should be provided daily, except during the winter. These bath pans are usually filled in the morning and emptied about noon. They are generally used only about twice a week in winter. It is very important that the bathing pans be kept clean, as the pigeons will drink out of these pans. If the pigeons drink filthy water its use may seriously affect the health and growth of the squabs. An outside watering and bathing basin which is supplied with running water (shown

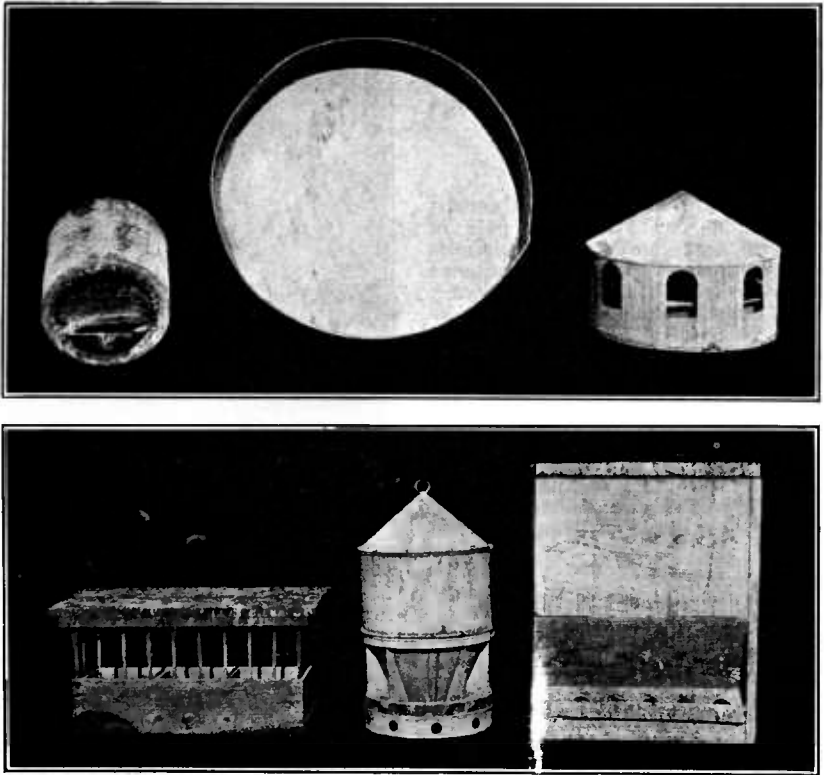


FIG. 13.—Above: Water founts with bath pan in center. Below: Feed hoppers of different styles

ing material should be arranged so that they can be readily handled from the alley. They are often built into the partition which separates the alley from the pens (fig. 12). Drinking vessels should be arranged so that the pigeons can not bathe in them. Large pans covered with wire, or fountains as shown in Figure 13, are best adapted for the purpose. A galvanized-iron pan from 3 to 4 inches deep and from 15 to 20 inches in diameter makes a good bath pan. Water for bathing

in the fly in Figure 8) makes an ideal arrangement.

### MARKETING THE SQUABS

The production of squabs from each pair of breeders varies from 1 or 2 to as high as 10 or 11 pairs a year, but an average of 6 or 7 pairs fit for market is a fair result. Some squab breeders produce more. Squabs usually sell at the highest prices per pound during cold weather, as pigeons

do not breed so freely then as in spring. The quality of winter squabs is not so good as that of spring squabs, and those produced in the winter do not usually attain such large size as those produced in spring and summer.

The price paid for dressed squabs varies with their size and quality and the season of the year. The monthly price per pound on dressed squabs weighing 10 pounds to the dozen, which is a fair average weight for good squab plants, was as follows, according to the wholesale quotations in Chicago in 1923: January through March, 75 cents; April, 70 cents; May, 65 cents; June through October, 60 cents; November, 65 cents; December, 70 cents. Small and dark-skinned squabs bring lower and extra large squabs slightly higher prices than these quotations.

Squabs are fed by the parent birds until they are marketed. They grow very rapidly and attain more than two-thirds of their mature weight in four weeks. Squabs at various ages are shown in Figures 14, 15, 16, 17, and on the title page.

Squabs are usually marketed at from 3 to 4½ weeks of age, when they weigh about 1 pound. They must be sold at about this age, as the period during which they are ready for market rarely exceeds one week. Squabs are in good market condition

juices of the squab at about 4 weeks of age are especially nourishing.

Market squabs should be collected from the nests in the morning, before the pigeons are fed, at which time the squabs' crops are usually empty. They are usually killed in the same manner as poultry, by opening the mouth and cutting the jugular vein in the throat



FIG. 15.—Squabs only seven days old but several times larger than when hatched

just below the base of the skull, after which the brain is usually pierced. In sticking, the squabs are hung by their legs on nails or hooks, with their wings double locked. After they are stuck the feathers are plucked immediately, using a dull knife for the pinfeathers. The appearance of the dressed squabs can be improved by singeing the flesh over an alcohol burner. If the crop contains any feed it should be cut open and thoroughly washed. After killing and picking, the squabs are cooled by placing them in cold water or by hanging them in a cool place.

Dressed squabs should be washed, cleaned, and graded according to size and quality, as dark-colored and small squabs tend to lower the price paid for an entire shipment of mixed squabs. For shipment by express they are packed in cracked ice in a tub or box, with alternate layers of ice and squabs. The words "Dressed squabs" and the weight of the shipment before the ice is added should be marked on the box, as express companies will allow 25 per cent off the gross weight for the ice packing. The box or tub should have holes in it for drainage. Local express shipments may sometimes be made without ice if the squabs are thoroughly cooled before shipment.



FIG. 14.—Squabs 24 hours old

when fully feathered under the wings, which is usually about the time they begin to leave their nests, and if not marketed at that time they soon lose their baby fat, while their flesh begins to get hard and loses its especially desirable character (figs. 18 and 19). It is said that the flesh and



The express charges on small shipments of squabs reduce the profit materially, and it is necessary to have a good-sized flock to furnish more than a dozen birds for market at one time. A local market that will take any number of squabs is a great aid to the small producer. It usually pays best to build up a small flock until it



FIG. 16.—Two weeks old and still growing rapidly

is large enough to make good-sized shipments. This, however, requires constant expense without any return for some time.

### DISEASES AND PARASITES

The pens and yards where pigeons are confined must be kept clean. There is very little chance of making squab production profitable unless the pigeons can be kept comparatively free from diseases and insect parasites. Diseases and parasites should not be a serious matter in squab raising, however, if healthy breeding stock is obtained and if houses and yards are kept clean and careful attention is given to the birds.

The stock should be carefully watched and any sick birds removed from the breeding pens. If one bird of a pair is sick the mate should also be removed.

The house should be kept dry, clean, well ventilated, and free from drafts. The floor should be covered with 1 inch of sand or gravel, and the manure deposited on top of the sand should be raked off frequently. The outside yards should be kept clean either by scraping the surface and adding fresh sand or gravel or by digging over the soil.

The nests, nest boxes, and pens should be cleaned at regular intervals, but the individual nest bowls should not be cleaned out while they contain eggs or squabs. The pen should be sprayed with whitewash containing a little crude carbolic acid, or with some other disinfectant, and the nest boxes and perches should be examined for mites, especially in hot weather, and sprayed with crude oil thinned with kerosene or with a wood preservative containing anthracene oil. If the pigeons have many lice on their bodies and wings they should be treated with sodium fluorid, either by dusting by the pinch method or by dipping in a solution. The treatment of lice and mites is discussed in Farmers' Bulletin 801, *Mites and Lice on Poultry*. The nests or nest pans should be cleaned and the nesting material removed as soon as the squabs are marketed or leave the nest.

Pigeons are subject to many of the diseases which affect poultry and may be treated in the same manner. Poultry diseases are discussed in Farmers' Bulletin 1337, *Diseases of Poultry*. Canker in the mouth and throat, and tuberculosis, which results in the birds' "going light," are the two diseases most common among pigeons. They are contagious and their spread is favored by insanitary conditions, foul drinking or bathing

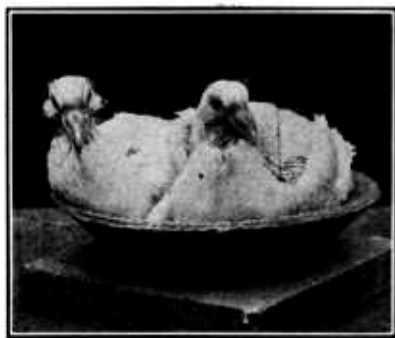


FIG. 17.—Squabs three weeks old. (Squabs four weeks old are shown on cover page)

water, and poor quality or kinds of feeds. The unfavorable conditions should be removed at once, and potassium permanganate may be added to the drinking water, using enough powder to give the water a light wine color. Canker is a form of bird pox or diphtheria (see Farmers' Bulletin 1337, page 5). The canker sores

should be removed carefully with a knife and the affected parts painted with tincture of iodine. Birds dead or killed because of this disease should be buried or burned.

#### CAUSES OF DEAD SQUABS

Dead squabs may be due to a variety of reasons which have been discussed somewhat throughout this bulletin. The cause of the mortality must be found and removed if profitable results are to be expected. Some

are kept clean, and when good feed is properly fed.

#### PRINCIPAL POINTS

Begin with healthy, vigorous, properly mated breeders. Good-quality foundation stock is very essential to success.

Select and keep only prolific breeders which are also good feeders.

Feed a variety of good-quality hard grains, including peas or peanuts. Use small whole corn rather than



FIG. 18.—Squab showing pinfeathers on underside of wing. Not quite old enough for market



FIG. 19.—Squab four weeks old. Ready for market and fully feathered under the wing

of the common causes are extra males or unmated pigeons which are constant causes of fighting in the breeding pens; coccidiosis in the breeding stock; rats or mice in the house; and lack of vitality, which may be caused by the use of dirty water, by poor quality of feed or lack of proper feed, by filthy conditions in the pen, or by carelessness in breeding and selecting the stock. Good results can be obtained only when the loft contains selected mated breeders which are strong and healthy; when the quarters

are cracked corn, unless the latter is freshly cracked.

The pigeon pen should be dry, well ventilated, and kept free from rats and mice. A double nest should be provided for each pair of breeders.

Keep fresh drinking water, protected to keep dirt out, before the pigeons, and provide a separate pan of water for bathing.

Market the squabs as soon as they are feathered under the wings, which is about the time they are able to get out of their nests.

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March 7, 1925

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This bulletin is a contribution from

<i>Bureau of Animal Industry</i> -----	JOHN R. MOHLER, <i>Chief</i> .
<i>Animal Husbandry Division</i> -----	E. W. SHEETS, <i>Chief</i> .

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